CLAIMS

1. A purified protein selected from the group consisting of a CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9 protein.

2. The protein of claim 1 which is a human protein.

3. A purified protein encoded by a nucleic acid hybridizable to a DNA having a sequence consisting of the coding region of the nucleic acids selected from the group consisting of SEQ. ID NO: 1, SEQ. ID NO:2, SEQ. ID NO:3, SEQ. ID NO:4, SEQ. ID NO:5, SEQ. ID NO:6, SEQ. ID NO:7, SEQ. ID NO:8, and SEQ. ID NO:9.

4. A purified derivative or analog of the protein of claim 1, which is able to be bound by an antibody directed against a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9.

5. A protein comprising an amino acid sequence that has at least 60% identity to a domain of a protein selected from the group consisting of CH-1, CH-2, CH- 3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, in which the percentage identity is determined over an amino acid sequence of identical size to the domain.

6. A protein comprising an amino acid sequence that has at least 90% identity to a domain of a protein selected from the group consisting of CH-1, CH-2, CH- 3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, in which the percentage identity is determined over an amino acid sequence of identical size to the domain.

7. A chimeric protein comprising a fragment of a first protein, selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, consisting of at least 6 amino acids fused via a covalent bond to an amino acid sequence of a second protein, in which the second protein is not the first protein.

8. The chimeric protein of claim 7 in which the fragment of the first protein is a fragment capable of being bound by an antibody against the first protein.

9. An antibody which immunospecifically binds a protein selected from the group consisting of CH- 1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH- 9, or a fragment or derivative of said antibody containing the binding domain thereof.

10. The antibody of claim 9 which is monoclonal.

11. An isolated nucleic acid comprising a nucleotide sequence encoding a protein selected from the group consisting of CH- 1, CH-2, CH-3 ), CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9.

12. The nucleic acid of claim 1 which is a DNA.

13. An isolated nucleic acid comprising a nucleotide sequence complementary to the nucleotide sequence of claim 11.

14. The nucleic acid of claim 1 in which the protein is a human protein.

15. An isolated nucleic acid comprising a nucleotide sequence selected from the group consisting of SEQ. ID NO: 1, SEQ. ID NO:2, SEQ. ID NO:3, SEQ. ID NO:4, SEQ. ID NO:5, SEQ. ID NO:6, SEQ. ID NO:7, SEQ. ID NO:8 and SEQ. ID NO:9.

16. An isolated nucleic acid hybridizable to the inverse complement of a DNA selected from the group consisting of SEQ. ID NO: 1, SEQ. ID NO:2, SEQ. ID NO: 3, SEQ. ID NO:4, SEQ. ID NO:5, SEQ. ID NO:6, SEQ. ID NO:7, SEQ. ID NO:8 and SEQ. ID NO:9.

17. An isolated nucleic acid comprising a fragment of the nucleic acid of claim 11, consisting of at least 8 nucleotides.

18. An isolated nucleic acid comprising a nucleotide sequence encoding a fragment of the protein of claim 4.

19. An isolated nucleic acid comprising a nucleotide sequence encoding the chimeric protein of claim 7.

20. An isolated nucleic acid comprising a nucleotide sequence encoding the protein of claim 5.

21. A recombinant cell containing the nucleic acid of claim 11, which nucleic acid is recombinant.

22. A recombinant cell containing the nucleic acid of claim 14, which nucleic acid is recombinant.

23. A recombinant cell containing the nucleic acid of claim 15 or 16, which nucleic acid is recombinant.

24. A method of producing a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9 comprising growing a cell containing the nucleic acid of claim 11, which nucleic acid is recombinant, such that the encoded said protein is expressed by the cell, and recovering the expressed said protein.

25. A method of producing a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9 comprising growing a recombinant cell containing the nucleic acid of claim 14 such that the encoded said protein is expressed by the cell, and recovering the expressed said protein.

26. A method of producing a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9 comprising growing a recombinant cell containing the nucleic acid of claim 20 such that the

encoded said protein is expressed by the cell, and recovering the expressed said protein.

27. A pharmaceutical composition comprising a therapeutically effective amount of a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9; and a pharmaceutically acceptable carrier.

28. The pharmaceutical composition of claim 27 in which said protein is a human protein.

29. A pharmaceutical composition comprising a therapeutically effective amount of the protein of claim 5; and a pharmaceutically acceptable carrier.

30. A pharmaceutical composition comprising a therapeutically effective amount of the chimeric protein of claim 7; and a pharmaceutically acceptable carrier.

31. A pharmaceutical composition comprising a therapeutically effective amount of the nucleic acid of claim 11; and a pharmaceutically acceptable carrier.

32. A pharmaceutical composition comprising a therapeutically effective amount of the nucleic acid of claim 15; and a pharmaceutically acceptable carrier.

33. A pharmaceutical composition comprising a therapeutically effective amount of the nucleic acid of claim 16; and a pharmaceutically acceptable carrier.

34. A pharmaceutical composition comprising a therapeutically effective amount of the recombinant cell of claim 20; and a pharmaceutically acceptable carrier.

35. A pharmaceutical composition comprising a therapeutically effective amount of an antibody, or a fragment or derivative of an antibody containing the binding domain of the antibody, that immunospecifically binds to a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9; and a pharmaceutically acceptable carrier.

36. A method of treating or preventing a disease or disorder involving cardiac hypertrophy in a subject comprising administering to a subject in which such treatment or prevention is desired a therapeutically effective amount of a molecule that promotes function of a protein or rRNA selected from the group consisting of CH-1, Desmin, Protein Kinase C-Binding Protein β15, 5.8 S rRNA, 18 S rRNA and 28 S rRNA.

37. The method according to claim 36 in which the disease or disorder is a pressure overload cardiac hypertrophy.

38. The method according to claim 36 in which the subject is a human.

39. The method according to claim 36 in which the molecule that promotes function of said protein is selected from the group consisting of said protein, a derivative or analog of said protein that is active in inhibiting cardiac hypertrophy, a nucleic acid encoding said protein, and a nucleic acid encoding a derivative or analog of said protein that is active in inhibiting cardiac hypertrophy.

40. A method of treating or preventing a disease or disorder involving cardiac hypertrophy in a subject comprising administering to a subject in which such treatment or prevention is desired a therapeutically effective amount of a molecule that inhibits function of a protein selected from the group consisting of CH-2, CH-31, CH-4, CH-5, CH-6, CH-7, CH-8, CH-9, α-Enolase, Antizyme Inhibitor, Biglycan, Cytochrome Oxidase I, Cytochrome Oxidase II, Cyclin G, D-binding protein, Fibrillin, Laminin α-1, p85 and Preproenkephalin.

41. The method according to claim 40 in which the molecule that inhibits function of said protein is selected from the group consisting of an antibody or a fragment or derivative thereof containing the binding region thereof against said protein, an antisense nucleic acid of a gene encoding said protein, and a nucleic acid comprising at least a portion of a gene encoding said protein into which a heterologous nucleotide sequence has been inserted such that said heterologous sequence inactivates the biological activity of at least a portion of the gene

encoding said protein, in which the portion of the gene encoding said proteins flanks the heterologous sequence so as to promote homologous recombination with a genomic gene encoding said protein.

42. The method according to claim 40 in which the disease or disorder is pressure overload cardiac hypertrophy.

43. A method of diagnosing a disease or disorder characterized by detecting an aberrant level of CHAG RNA or protein in a subject, comprising measuring the level of said RNA or protein in a sample derived from the subject, in which an increase or decrease in the level of said RNA or protein, relative to the level of said RNA or protein found in an analogous sample not having the disease or disorder indicates the presence of the disease or disorder in the subject.

44. A method of diagnosing or screening for the presence of or a predisposition for developing a disease or disorder involving cardiac hypertrophy in a subject comprising measuring the level of a protein, RNA or functional activity selected from the group consisting of CH-1, Desmin, Protein Kinase C-Binding Protein β15, 5.8S rRNA, 18S rRNA and 28S rRNA in a sample derived from the subject, in which a decrease in the level of said protein, RNA, or functional activity in the sample, relative to the level of said protein, RNA, or functional activity found in an analogous sample not having the disease or disorder or a predisposition for developing the disease or disorder, indicates the presence of the disease or disorder or a predisposition for developing the disease or disorder.

45. A method of diagnosing or screening for the presence of or a predisposition for developing a disease or disorder involving cardiac hypertrophy in a subject comprising measuring the level of a protein, RNA or functional activity selected from the group consisting of CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, CH-9, α-Enolase, Antizyme Inhibitor, Biglycan, Cytochrome Oxidase I, Cytochrome Oxidase II, Cyclin G, D-binding protein, Fibrillin, Laminin α-1, p85 and Preproenkephalin in a sample derived from the subject, in

which an increase in the level of said protein, RNA, or functional activity in the sample, relative to the level of said protein, RNA, or functional activity found in an analogous sample not having the disease or disorder or a predisposition for developing the disease or disorder, indicates the presence of the disease or disorder or a predisposition for developing the disease or disorder.

46. A kit comprising in one or more containers a molecule selected from the group consisting of an antibody against a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, a nucleic acid probe capable of hybridizing to a RNA selected from the group consisting of an RNA encoding CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, or a pair of nucleic acid primers capable of priming amplification of at least a portion of a nucleic acid selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9.

47. A kit comprising in a container a therapeutically effective amount of a protein selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9.

48. A method of identifying a molecule that specifically binds to a ligand selected from the group consisting of a protein, a fragment of the protein comprising a domain of the protein, and a nucleic acid encoding the protein or fragment, selected from the group consisting of CH- 1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9, comprising (a) contacting said ligand with a plurality of molecules under conditions conducive to binding between said ligand and said molecules; and (b) identifying a molecule within said plurality that specifically binds to said ligand.

49. A recombinant non-human animal in which an endogenous gene selected from the group consisting of CH-1, CH-2, CH-3, CH-4, CH-5, CH-6, CH-7, CH-8, and CH-9 has been deleted or inactivated by homologous recombination or insertional mutagenesis of said animal or an ancestor thereof.